



## Clarkson 2019 Ignite Graduate Research Fellowships Research Collaboration Pilot Grant Program

**Context.** Multidisciplinary research clusters have been identified to maximize Clarkson's historical bench strengths and opportunities for national and international recognition. Clarkson is providing a strategic investment in research, with a goal of developing preeminent researchers and elevating the university's Carnegie Classification to R1 designation (highest research activity). Meaningful prioritized investments are expected to foster collaborations across campus, significantly impact research, and spur innovative solutions for a better future.

**Purpose:** To catalyze the development of externally fundable proposals, a competitive pilot grant program will be used to provide Clarkson grantees with financial support *to achieve the following goals:* (1) foster development of rigorous foundational data, (2) demonstrate the success of new interdisciplinary collaborations, (3) establish the feasibility of new methods, techniques, instrumentation or equipment in the recipient's laboratory, or (4) address other needs essential to strengthening the competitiveness of future research applications.

**Description.** Pilot grants will achieve the above goals through the assistance of a *graduate research fellow* awarded to support the team. Adding this resource to a well-planned project and organized research team will support the preliminary work necessary to develop competitive proposals for externally funded research. Specifically, pilot grant funds will support the stipend and tuition for a graduate student enrolled in (or expected to enroll in) a doctoral program (hereafter known as the *Ignite Graduate Research Fellow*). The recruitment and selection of the fellow will be the responsibility of PIs. Acquisition of any additional resources necessary to achieve pilot grant goals is the responsibility of the research team.

Research teams are expected to leverage initial results generated from the pilot grant and submit a proposal no later than 24 months after the award decision, with that proposal leading to external funding. Those external awards would then be used to support the fellow through attainment of the Ph.D. (The student would transition from internal fellowship support to external grant support once that grant award is received.) While recognizing that external funding cannot be assured, this program understands that *guaranteed support* is essential to the University's ability to recruit the best graduate students. As such, this program will *guarantee up to two years of funding*. Continued funding for the fellow beyond two years of support will be considered based on critical review of fellow's satisfactory progress toward Ph.D. and the PIs' progress toward securing external funding. The fellowship will be reviewed annually to assess student's academic and scholarly progress and overall activity of the team.

The primary outcomes of the pilot grant program are submission of competitive proposals that result in externally funded research for the research team and successful completion of the PhD degree for the fellow.

**Eligibility.** All full-time Clarkson faculty members regardless of rank are eligible to apply and serve as a Principal Investigator (PI). The PIs and co-PIs of awards from prior Research Collaboration Pilot Grant competitions are not eligible to apply until their Ignite Graduate Research Fellow is moved into the PIs' external grant/contract funds.

Since one purpose of this program is to encourage new cross-campus, interdisciplinary collaborations, each application requires at least two faculty PIs, one of whom must be from a doctorate-granting department. Although PIs from different departments are preferred, those from a single department may apply but must make the case that the project is interdisciplinary. Up to three other faculty members may participate as co-investigators.

**Funding Level.** Clarkson anticipates supporting six Ignite Graduate Research Fellows in this funding cycle.

**Timeline**

<b>Call for Proposals</b>	<b>October 12, 2018</b>
<b>Faculty Q&amp;A</b>	<b>November 9 at 12:30–2 pm November 15 at 2:30–4 pm</b>
<b>Submission Deadline</b>	<b>December 3, 2018 at 5 pm</b>
<b>External Reviewer Feedback</b>	<b>January 21, 2019</b>
<b>Invitation Extended</b>	<b>January 25, 2019</b>
<b>Presentations (<i>invited</i>)</b>	<b>March 1, 2019</b>
<b>Selection Results Reception</b>	<b>March 1, 2019</b>

**Application:** All interested research teams must submit a short research application that follows the attached Proposal Preparation Guidelines. ***Applications that do not adhere to the Guidelines may be returned without review.*** Additionally, the PIs of the most meritorious applications will give a short presentation to the selection committee at an open forum as part of the final selection process. Instructions for presentations will be provided to those invited.

**Selection Process and Criteria**

**Selection Process:** A three-stage process will be used, incorporating merit review and an oral presentation from the PIs delivered directly to the selection committee.

- **Stage one:** All proposals will be evaluated by non-conflicted, external reviewers for scientific and technical merit including the team’s qualifications and capabilities, significance and potential impact.
- **Stage two:** An internal panel comprising representatives of University administration and current Ignite PIs/co-PIs will evaluate proposals deemed meritorious by external review for programmatic considerations: institutional balance and indicators of potential research productivity including PI’s publications, training record (graduate students and undergraduates), external funding relative to academic rank. Based upon these considerations, the internal panel will recommend a slate of 12 meritorious proposals to advance in the competition. If more than 12 proposals are identified, the Vice President for Research and Scholarly will select the final 12 proposal teams to advance to the final stage considering institutional priorities.
- **Stage three:** PIs of proposals selected at Stage two will be invited to give a five-minute presentation to the selection committee followed by a brief question and answer period. The selection committee comprises members of the Clarkson University Board of Trustees and other external leaders.

**Stage one review criteria:**

Merit will be determined from considerations of

- 1) the importance and innovation of the project’s stated goal;

- 2) the feasibility of the proposed approaches to achieve the project's goal and objectives;
- 3) the multidisciplinary team's qualifications and capabilities to address the project's objectives as proposed;
- 4) any potentially non-routine matters associated with the health, welfare, and safety of research participants (animals / humans) and the environment, that may impact the performance of the product; and
- 5) the potential of the project to secure external funding within two years.

Reviewers will rate their assigned applications (each application according to its own merit) using a scale of 1 to 9, as used by the NIH, for the following two factors.

1. *the potential impact of the project*—considering factors 1 through 4, the ability to transform the field/discipline or problem space or exert a sustained powerful influence on the research fields involved, and
2. *potential to secure external funding*—if the proposed foundational research is successfully conducted as described, the likelihood the project would be successful in securing external funding from the sponsors identified.

**Stage two review criteria:**

The internal panel will be provided with: a list of applications submitted ranked by project impact score and external funding potential, executive summaries, and external reviews. Depending upon the number of applications submitted and those considered by external review to be meritorious (based upon the distribution of scores), the internal panel may make elect to discuss a subset of applications.

Programmatic factors that will be considered are: (order presented alphabetically)

- 1) *collaboration history*: balance of new collaborations (those whose members have no track record), existing collaborations with a new project, and existing collaborations with variation on an existing project that has high potential to benefit from pilot funding;
- 2) *institutional balance*: distribution across schools and colleges or departments;
- 3) *Productivity*: indicators of potential productivity including PI's publications, and external funding (relative to academic rank);
- 4) *student training*: track record of successfully training graduate and undergraduate students; and
- 5) *thematic balance*: distribution of multidisciplinary research topics;

The purpose of the stage-two review is to recommend a portfolio of meritorious applications with highest potential to achieve the Pilot Grant Program's goals.

**Stage three review criteria:**

Proposals selected to present to the selection committee will be evaluated for the transformative potential and impact of the multidisciplinary, collaborative project; the project's potential to build translational research, create intellectual property or influence basic or applied research; and the quality of the public presentation including the ability to field questions. The selection committee will select up to six awards.

**Selection:**

**Award decision:** Presenters will be notified of funding decisions shortly after the oral presentations. The panel may recommend modifications to the proposed research strategy or team composition.

**Negotiation and acceptance.** The project team will be provided the opportunity to clarify or otherwise negotiate the proposed modifications. The final research strategy, team, and budget will be incorporated into the award documentation. The PI's will affirm their understanding of the requirements of multi-year support for the graduate fellow, including that fellows are to be moved from institutional support to external grant or contracts upon receipt of external award.

**Pre-award Requirements:**

- All applicable institutional regulatory requirements must be addressed prior to project initiation and appointment of Ignite Graduate Research Fellow, e.g., human or animal subjects' protections, environmental health requirements, etc.
- All team members will be asked to sign an acknowledgement that acceptance of the funds comes with the expectation that within 24 months of project award, an external funding proposal will be prepared and submitted.

**Post Award Reporting Requirements**

An annual progress report will be required 12-months after the award start date. Failure to submit the required progress report by the deadline specified may result in funds being frozen until this requirement is met. Annual progress reports will project results, efforts to pursue externally funded research, and the status of the *Ignite Graduate Research Fellow's* progress toward degree completion.

## **Appendix: Multidisciplinary Research Focus Areas**

- 1. Data and Complex Systems Analytics (DCSA)** Cross cutting discipline that allows for the analysis and understanding associated with the massively complex multi-modal data sets from modern sensor rich, computational rich engineering, scientific, and social media settings. Strengths in data analytics and complex systems modeling spans the three schools and includes dynamical systems as learned from data, sensors and controls, business intelligence and financial technology, and artificial intelligence.
- 2. Healthy World Solutions (HWS)** Interdisciplinary faculty teams from across campus create healthy environment solutions that ultimately protect air, water and habitat resources; reduce public health threats from environmental contamination or lack of access to medical care; develop and implement new energy policies and technologies; create sustainable infrastructure and communities; integrate environmental concerns into management practices; and, ensure the security of our societies.
- 3. Advanced Materials Development (AMD)** Advanced materials experts work collaboratively to design and develop next generation materials and integrated material systems to solve real world challenges in fields of electronics, aeronautics, biotechnology, health, safety and security, mechanical systems, energy generation and storage, and manufacturing technology. Strengths include tailored material design, synthesis and modeling, functional materials and devices, sensors and sensing systems, drug delivery and diagnostic tools for a healthy and sustainable environment, material sourcing and supply chain management, healthy people and an improved quality of life.
- 4. EMERGING: Next Generation Health Technologies (NGHT)** Emerging approaches to addressing critical challenges to human health include innovative technologies for preventing, detecting, and treating disease including therapeutic strategies as well as economic, entrepreneurship, social and ethical challenges to health care innovation, management, and access.

## Proposal Preparation Guidelines

**Formatting requirements.** Unless otherwise specified, the font style and size must be 11.5 point Times New Roman, paragraph line spacing of 1.07, margins of 0.5” all sides, and paginated continuously at bottom center. Figure captions and tables are excluded from font and spacing requirements, but must be legible when printed. PIs’ names and departmental affiliations should be in the upper right hand corner of each page.

### Application Components

1. **Cover Page** – Use the document provided; upon completion, convert to PDF (do not scan).
  - a. NOTE: Key words will be used to identify potential external reviewers.
2. **Executive Summary** – Use the document provided and in 1 page, answer questions completely
3. **Research Strategy** – Address requested information in up to 3 pages
4. **Bibliography** – Provide all authors’ names, and citation titles. While there is no page limit, applicants are asked to provide a reasonable number of citations that objectively reflect the state of knowledge.
5. **Biographical Sketches** – Use the attached template and provide all requested information.

A complete application comprises the above five components.

### Submission, certification and assurances

The corresponding PI is to transmit a single PDF document to:

Email [vpr@clarkson.edu](mailto:vpr@clarkson.edu) by 5:00 pm, Friday, December 3, 2018.

All key personnel (PI, Co-PI and Investigators) must be copied on the transmittal to [vpr@clarkson.edu](mailto:vpr@clarkson.edu); this signifies their awareness of their participation in the project, their certification and assurance of all application information, and agreement with award requirements. Transmittals that do not include all key personnel may not be advanced to review.

## 2019 Ignite Graduate Research Fellowship Cover Sheet

**Key Personnel:**

	Role Name	Corresponding PI	Co-PI
Primary Discipline			
Title			
Dept <sup>1</sup>			
Email			
Phone			
Role	Investigator	Investigator	Investigator
Name			
Title			
Dept			
Email			
Phone			

**Project Focus area(s):** Put an **X** before all that apply; Put #1 for primary if more than one area is selected.

Data and Complex Systems Analytics	Healthy World Solutions
Advanced Materials Development	EMERGING: Next Generation Health Technologies

**Key Words:** Provide three descriptive terms for your project topic area and methodologies to be used.

<b>Topic Area</b>			
<b>Methodologies</b>			

**This project involves** (underline applicable response):

- Human subjects**      Yes   No  
**Animal subjects**      Yes   No  
**Hazardous materials**   Yes   No  
**Existing (protected) IP**   Yes   No  
**Potentially non-routine data management (HIPAA etc.)**    Yes   No

**Assurances, Certifications and Approvals** of PIs and the Sponsored Research Services (SRS):

- We attest that the information contained is complete, accurate and truthful to the best of our knowledge and do not infringe on the intellectual property rights of others.
- We agree to submit an application for external funding within 9 months of project completion based upon the research results.
- We will adhere to all institutional, state and federal regulations applicable to the project work.
- We will submit required progress reports annually in accordance to instructions to be provided.

Title/Role	Printed Name	Date
PI	_____	_____
Co-PI	_____	_____
Investigator	_____	_____
Investigator	_____	_____
Investigator	_____	_____

<sup>1</sup> Must be from a doctorate-granting department

## Executive Summary

[One page limit. – Replace instructions in red or blue text with responses that completely address information requested.]

- A. Project Title:** Concisely describe the project’s purpose or outcomes. Start the title with an abbreviation of the research theme to which the project is most closely aligned followed by a colon. Up to two themes may be included and the first shall be relevant priority. For example: *DCSA: Creating a data warehouse for analysis of nutritional status.*
- Data and Complex Systems Analytics: **DCSA**
  - Healthy World Solutions: **HWS**
  - Advanced Materials Development: **AMD**
  - EMERGING: Next Generation Health Technologies: **NGHT**
- B. Summary:** [Provide a one-two sentence summary of your effort: what you are trying to do and why does it matter. Do not use technical jargon. (1-2 sentences)]
- C. Intro/Background:** In everyday language, describe the context of the problem of study. (One paragraph)
- a. What is the problem you are trying to solve and why is it important?
  - b. What is/are the current state of the art and what are the limitations to current approaches?
- D. Impact:** Describe the impact of successfully completing your project within the field, community, and wider audience. (One short paragraph)
- a. If you succeed, what difference do you think it will make within the thematic area(s)?
  - b. Who is the targeted external funding source(s)?
  - c. Why is pilot grant support needed?
- E. Research plan:** Outline your research plan and summarize the general methodologies you will use. The research plan should include both pilot grant and to be externally funded activities.
- a. What is objective of your pilot grant and of your follow-on project?
  - b. What are the advantages of your proposed methodologies over existing ones?
  - c. Discuss why is a multidisciplinary approach is required and how your team’s qualifications and capabilities promote project success.
  - d. What is the expected outcome from preliminary work that will lead to an external funding proposal?
  - e. What is the five-year plan for this research [assume external funding is obtained.]
- F. Overlap:** Is the project team currently or recently funded for similar work? Is yes, how does the proposed work differ in approach, scope or outcomes.



## Detailed Description

[Three page limit.]

**Research Strategy.** In addition to the Executive Summary, the written proposal may include up to three additional pages describing the significant aspects of the intended research project, providing more detailed information regarding both the technical aspects of research activities, and the research and external funding plan to be pursued. Present the rationale and approaches for your research design and experiments, and describe expected results of project experiments and objective(s). Distinguish work to be completed within the first two years and the five-year follow-on project to be supported by external sponsors. Note any challenges and alternative approaches. Include a timeline for completion of specific objectives/aim(s) with milestones as applicable, and identify the activities / tasks for which each PI /investigator is responsible.

[Sections below are not included in the page counts.]

**Bibliography.** Present the references cited. Include all authors and citation title. Include any other references that are relevant but not cited that reflect the current state of knowledge and the art. Not expected to exceed two pages.

**Biographical Sketch.** Provide a biographical sketch for all key personnel, using the attached template.

## NAME

### PROFESSIONAL PREPARATION

Institution	Location	Field/major	Degree, Year
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Include postdoc training

### APPOINTMENTS – *reverse chronological order*

2013-present      *Title, Affiliation, location*

### TOTAL NUMBER OF PEER-REVIEWED PUBLICATIONS (#) AND IN LAST FIVE YEARS (#):

#### (UP TO FIVE) MOST CLOSELY RELATED PUBLICATIONS/PRODUCTS

1. Acceptable products must be citable and accessible including but not limited to publications, data sets, software, patents, and copyrights.
2. Unacceptable products are unpublished documents not yet submitted for publication, invited lectures, and additional lists of products.
3. Each product **must include full citation information including** (where applicable and practicable) names of all authors, date of publication or release, title, title of enclosing work such as journal or book, volume, issue, pages, **website and URL, or other Persistent Identifier.**

#### (UP TO FIVE) OTHER RELEVANT PUBLICATIONS/PRODUCTS

### SYNERGISTIC ACTIVITIES

#### *Graduate Student Training*

- Number of graduate students currently in the laboratory: #
- Number of graduate students (MS, PhD) completed in last five years: #

#### *Undergraduate training*

- Number of undergraduate students currently in the laboratory: #
- Number of undergraduates in the lab who are women, disadvantaged, or underrepresented: : #

#### *External funding.*

Current Awards: Sponsor name, award number, project title, your role

Pending Awards: Sponsor name, award number, project title, your role